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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SALVATORE, LYNDIA

ART UNIT PAPER NUMBER

1771

DATE MAILED: 02/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/619,531

Applicant(s)

GROH ET AL.

Examiner

Lynda M Salvatore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 and 13 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-12, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's remarks filed August 18th, 2003 have been entered as requested. Applicant's arguments with regard to the 35 U.S.C. 103(a) rejections set forth in sections 3-7 of the last Office Action have been fully considered but are moot in view of the new ground of rejection set forth herein below.

Claim Rejections - 35 USC § 112

2. Claim 12 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a pre-consolidated non-woven layer, does not reasonably provide enablement and/or description for the negative limitation of a non-woven layer which is not pre-consolidated.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1,3,5-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baravian et al., US 5,616,395 in view of Schops et al., US 6,235,657 and further in view of Hiers, RE 33,023.

The patent issued to Baravian et al., teaches a two-layer textile reinforcement comprising a thermostabilized consolidated non-woven first base layer needled to a second mineral fiber layer, which may in the form of a grid, scrim or cloth of continuous or discontinuous mineral filaments (Abstract). Baravian et al., teaches the application of heat to consolidate the non-woven and preferably comprises a sheet of continuous filaments of a thermoplastic synthetic polymer, having no binder fibers, such as a polyester, co-polyester, or polyamide (Column 2, 63-65 and

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Column 3, 45-55). With regard to claim 3, Baravian et al., teaches a non-woven sheet of polyolefin filaments, which is calendared under heat and pressure to achieve the desired shrinkage and density (Column 4, 45-57). The Applicant has not limited when the heat shrinking of the fibers takes place just that it occurs. Without such limitations, it is the position of the Examiner that calendaring a synthetic non-woven sheet under heat and pressure would effectively heat shrink the fibers comprising the non-woven layer.

With regard to claims 5, 9 and 10, Baravian et al., teaches consolidating the first layer by mechanical needling (Column 4, 45-48).

With regard to claims 6, 9, and 10 Schops et al., teaches needling at about 20-70 stitches/cm², evidencing that this needling stitch range is known in the art (Schops et al., Abstract).

The second mineral layer preferably takes the form of a scrim of mineral fibers formed by wet or dry non-woven processes, more particularly discontinuous glass fibers with chemical or thermal bonding (Column 3, line 65-Column 3, line 5). In this case, chemical bonding is interpreted as any type of resinous based binder.

Baravian et al., does not expressly teach end consolidating with a binder, however, the patent issued to Schops et al., discloses needling together a three layer laminate comprising two synthetic spunbonded layers and at least one reinforcing layer disposed between the two synthetic layers (Abstract and figure 1). The laminate may also be further end consolidated with a chemical binder such as polyvinyl alcohol (PVA) or butadiene-styrene copolymers (Column 5, lines 17-18).

Therefore, motivated to provide added durability and strength to the final laminate it would have been obvious to one having ordinary skill in the art at the time the invention was

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made to further consolidate the laminate of Baravian et al., with the chemical binders taught by Schops et al.

With regard to claims 11 and 12, Baravian et al., fails to teach two non-woven layers however, the patent issued to Schops et al., discloses needling together a three layer laminate comprising two synthetic spunbonded layers and at least one reinforcing layer disposed between the two synthetic layers (Abstract and figure 1). The spun-bonded webs are made of continuous filaments composed of melt-spinnable materials such as polyester (Column 2, lines 30-40).

With regard to the titer factor, it is the position of the Examiner that said limitation constitutes a method limitation not shown to effectively manipulate the final glass woven product structure. As such, said limitation is not given patentable weight at this time. The burden is shifted to the Applicant to evidence otherwise.

Therefore, motivated to provide multi-layer composite having added strength, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the teachings of Schops et al., and form the composite of Baravian et al., with two synthetic non-woven layers.

With respect to claims 7 and 8, Schops et al., lacks an explicit teaching as to the amount of polyvinyl alcohol (PVA) or butadiene-styrene copolymer binders, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the amount of binder used to end-consolidate the laminate as a function of desired durability, cohesion and strength. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum value of a results effective variable involves only routine skill in the art. *In re Boesch* 272, 205 USPQ 215 (CCPA 1980)

With respect to the limitation that a portion of the fibers of the synthetic non-woven layer passes through the non-woven mineral layer, Baravian et al., teaches needling the first and second base layer together, the Examiner asserts that a portion of fibers from the first layer would inherently pass to the second layer. While the Examiner concedes that the degree of needling is not specifically, taught, it is widely known in the art to vary the depth of penetration as function of mechanical strength and composite integrity. For Example, the patent issued to Hiers teaches needling a glass fiber batt and an organic fiber batt together to form a composite such that resulting layers are substantially non-detachable from each other and from an integral composite fabric (Column 4, 39-45). The Examiner would also like to call attention to figure 2 of the Hiers patent, which clearly illustrates needle penetration through all of the layers such that the layers are bound together at the respective inner surfaces (Figure 2, Column 5, 20-35).

Therefore, motivated by the desire to form a composite having sufficient mechanical strength and integrity, it would have been obvious to one having ordinary skill in the art at the time the invention was made to needle the layers in the invention of Baravian et al., and Schops et al., such that that resulting layers are substantially non-detachable from each other and form an integral composite fabric as taught by Hiers.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baravian et al., US 5,616,395 in view of Schops et al., US 6,235,657 and in view of Hiers, RE 33,023 as applied to claim 1 above and further in view of Heidel et al., US 5,171,629.

The combination of prior art fails to teach a specific chemical binder suitable for pre-consolidating the glass fabric, however, the patent issued to Heidel et al. needling a glass fiber

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mat and synthetic fiber mat . Heidel et al. teaches pre-consolidating the glass fiber mat with polymer binders or melamine resins (Column 2, lines 14-17).

Therefore, motivated to provide a consolidated woven fabric layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the polymer binders or melamine resins taught by Heidel et al., to consolidate the glass fiber layer in the invention of Baravian et al., and Schops et al.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baravian et al., US 5,616,395 in view of Schops et al., US 6,235,657 and in view of Hiers, RE 33,023 as applied to claim 11 above and further in view of Binnersley et al., US 4,816,327.

The combination of prior art fails to teach employing weft tape yarns in the woven glass fabric, however, Binnersley et al. disclose woven fabrics made from impregnated glass fibers in which the weft yarns are tapes (column 2, 40-47). Binnersley et al., teaches that such a fabric exhibits conformity and uniformity, as it will remain parallel to the plane without twist. As result said woven fabric is highly suitable for use in laminates or molded parts (Column 4, 5-11).

Therefore, motivated by the conformity and uniformity properties, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the the weft filaments in the mineral layer of Baravian et al., and Schops et al., with the weft tapes of Binnersley et al.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baravian et al., US 5,616,395 in view of Schops et al., US 6,235,657 and in view of Hiers, RE 33,023 as applied to claim 1 above and further in view of Johnson, US 5,571,596.

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The combination of prior art fails to the type of glass fibers employed in the glass layer, however, the patent issued to Johnson teaches a roofing shingle including a plain woven E-glass fabric (column 7, 5-6). Johnson teaches that E-glass provides superior strength without increasing the thickness or weight of the shingle (Column 5, 43-47).

Therefore, motivated by the benefits imparted with the use of E-glass, it would have been obvious to one having ordinary skill in the art at the time invention was made to have employ the E-glass fibers of Johnson in the web of mineral scrim layer of Baravian et al., and Schops et al.

Allowable Subject Matter

8. Claims 4 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Specifically, the combination of prior art fails to teach pre-consolidating the synthetic filaments by calendaring. In this instance the Examiner interprets this limitation to mean that the synthetic fibers are thermally consolidated prior to the formation of the non-woven layer. With regard to claim 13, the combination fails to teach or fairly suggest a woven web of continuous glass filaments as warp yarns and glass staple fiber yarns as weft yarns. An updated art search did not produce any new substantial art for which to base a rejection and presently no motivation exists to combine references to form an obvious type rejection.

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Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynda M Salvatore whose telephone number is 571-272-1482.

The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1482. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-0994.

January 15, 2004

ls. 


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